



NO MORE FISH IN THE SEA

Lessons from New England



By Caroline Wheal

66 **A**ny fisherman with any sense would've seen the signs," says Bill Amaru, shaking his head. The water glitters in the early-morning light as he steers his 44-foot trawler, the Joanne A. III, out of the harbor. It's going to be the kind of day that makes you glad you got up at 5 a.m.—clear, crisp and breezy. Maybe too breezy. Two red pennants stand out stiffly from a mast outside the Coast Guard station: a gale-force warning. Amaru sighs; it's not looking good for fishing today after all.

In fact, it has not been looking good for fishing along New England's once-bountiful Georges Bank for quite some time. And now, a few weeks later, it looks worse. The entire fishing fleet might soon be tied to the dock—good weather or not.

In 1972, when Amaru started fishing out of Chatham, Mass., 95 percent of his catch was cod, the state's economic cornerstone and the namesake of Cape Cod. Today he fishes for whiting—which sells at the dock for as little as 10 cents a pound—

and shrimp. "Anyone who wants to stay viable in this industry today has to find alternatives," says Amaru, who is exploring several. Four years ago he began harbor tours for visitors and he teaches environmental science at the Massachusetts Maritime Academy. He recently applied for a grant to develop ways of making traditionally undesirable fish, such as mackerel and herring, more palatable.

This is a far cry from the romantic picture of independent fishermen braving the elements to catch plentiful fish. But the scene has changed. The area from the Georges Bank off Massachusetts through the Gulf of Maine to Newfoundland's Grand Banks used to be one of the world's richest fisheries. When explorers reached North America in 1497, they could catch cod by dragging a wicker basket through the water. For generations, abundant amounts of groundfish—cod, haddock and flounder—supported a booming fishing industry throughout coastal New England. Not any more.

◀ *Trawlers moored in New Bedford at the end of the day. Of the 2,000 licensed vessels in the northeast, the 300 over 85 feet take the most fish and are the first to be regulated.*

Between 1977 and 1987, groundfish stocks declined by two-thirds as the fishing fleet doubled to about 900 boats. The catch of Atlantic cod fell from 3 million to 900,000 tons between 1970 and 1991. By 1993, haddock landings were so low that the Gulf of Maine and Georges Bank were closed to commercial haddock fishing for the first six months of 1994; closures for flounder and cod won't be far behind.

The "collapse" of the New England fishery has actually been a gradual crumbling as, year after year, more and more of the juvenile fish and spawning stocks are pulled out of the sea before they have a chance to mature or reproduce. As Steven Murawski, chief population dynamics scientist at the National Marine Fisheries Service (NMFS) in Woods Hole, Mass., puts it: "Without mommies in the population, we're not going to have any babies." Some species have tried to compensate for their declining numbers by maturing earlier, only to be met by increased fishing.

New England fishermen have always adapted to natural fluctuations in fish numbers, but their tolerance for ups and downs also helps explain why many denied the problem for so long. Says Mark Simonitsch, a Chatham fisherman whose catches of cod, squid and butterfish have plummeted during 28 years in the business, "We mistook a lack of fish for a natural downturn and then fished harder than ever."

"We're in deep, deep denial over the extent to which we've damaged the oceans," says Richard Wheeler, who recently made a film likening the demise of Newfoundland's extinct great auk to the North Atlantic cod fishery. "The result would've been the same if fishermen had been told cod, flounder and haddock were dangerous creatures that had to be destroyed."

For a while, price increases made up for lower volume, masking the situation somewhat. But now local cod are priced as high as they can be to compete with cheap imports from Canada, Iceland, Norway and Russia. Although the average American eats 15 pounds of fish a year, most are probably unaware that there's even a crisis. Amaru says, "Most people's only connection to this industry is fish markets, and they're still overflowing—with fish from other places." The United States imported \$10.6 billion of fish and fishery products in 1993. "We're awash in a sea of imported fish," says Murawski.

The crisis in New England is not an isolated event. Thirteen of the world's 17 major fisheries are depleted or in steep decline, according to the U.N. Food and Agriculture Organization. Cod are now commercially extinct in Canada's Grand Banks. Pollack stocks have collapsed in the Bering Sea. The Atlantic bluefin tuna population has declined 90 percent since the 1970s. Pacific Northwest salmon, which supported a multibillion-dollar industry 10 years ago, are skirting with commercial extinction as the streams where they spawn are dammed or silted up by logging. Red snapper and grouper from the Gulf of Mexico, Peruvian anchovies, New Zealand orange roughy, Caribbean redfish, Atlantic swordfish—the list goes on. It's almost as inexhaustible as the ocean's bounty was once thought to be.

In the 1992 film *The Mirage of the Sea*, Captain Cousteau compares his first dive in the Mediterranean in 1946 with one made 30 years later, remarking sadly on the lack of once-abun-

dant fish: "We stood aghast to find only a desert. ... The scene is empty. The set is the same, but the actors have vanished."

A full-page advertisement in commercial fishing magazines partly explains why the actors are vanishing worldwide. "Now ... fish can't hide," promises the company of its latest models of fish finders. Fishing successfully no longer depends solely on a skillful captain and hard-working crew. Wheelhouses on even the smaller vessels are alight with depth finders, color plotters, radar and loran. Such sophisticated electronics make variables that used to depend on human ability (navigating, depth finding) and a certain amount of luck (finding the fish) available at the touch of a button. "Machines have replaced muscles," says Captain Cousteau over images of 350-ton squid jiggers, whose mechanized arms haul in thousands of squid an hour. Bigger, more powerful boats mean fishermen can go out in weather that might have kept them in port before. There is no respite for the fish. They can be caught in virtually all weather, at all depths, all the time.

Gear has also improved. New nets don't rip as easily and can be towed much faster than the old natural-fiber ones. Lost gill nets, known as ghost nets, keep on fishing but no one comes by to empty them. A wreck off Chatham is draped with so many snagged gill nets that it resembles a Christmas tree when picked up on screen. What heavy-duty, industrial-strength fishing gear does to the underwater landscape is also starting to get some attention. Although not as obvious as the scar of a clearcut through old-growth forest, there's little doubt that a scallop dredger dragging two four-ton rakes or a trawl net equipped with metal rollers and steel doors weighing as much as one ton each are damaging the sea floor.



Bill Amaru prepares to pay out his trawl net, a funnel-shaped net that is dragged over the sea floor, where it scoops up 1,000–2,000 pounds of fish per tow. The world's largest trawl nets can encompass 12 jumbo jets and catch 60,000 pounds of fish at a time.



This small operation on a private pier in Chatham takes fish off the boats, sorts and packs them in the wooden shed and loads them onto the trucks waiting to take them to restaurants and markets.

Another problem is bycatch—the fish caught along with the target fish and usually discarded—which wastes about 20 million tons of fish each year worldwide. For every pound of shrimp caught in the Atlantic and the Gulf of Mexico, nine pounds of other fish are caught and thrown back. The Nordmore grate, a metal frame that fits into a shrimper's trawl net and literally strains out finfish, allowing them to escape, has reduced this "incidental" catch in areas that require its use.

Overfishing and habitat destruction have caused alarming drops in marine populations—with dire implications for species, marine ecosystems, world food production and the economic stability of countries that depend on fishing. Fish is the primary protein source for many in developing countries, and fishing and fish-related industries support about 200 million people worldwide, according to Peter Weber of the Worldwatch Institute.

Intense competition for fewer fish has provoked skirmishes between countries: Canada and the United States over Pacific salmon; Norway and Iceland over cod; Britain and Argentina over rights to the Patagonia Shelf; and Southeast Asian countries over claims to the South China Sea.

Fisheries are a tough test case for so-called sustainable development. Can a free-roaming, commonly held resource with so many conflicting stakeholders ever be managed sustainably? And can we preach sustainability to others, particularly less developed nations, without first practising it ourselves? The record is not encouraging; human greed and shortsightedness seem to make it sadly inevitable that natural resources will be exploited to the brink of collapse or extinction. Then, when they do become scarce, the same governments that encouraged and facilitated their exploitation step in with subsidies to delay the sting of economic hard times. Worldwide, governments already subsidize national fleets by about \$54 billion a year to catch \$70 billion worth of fish.

"By 1988, I realized it was finite," says Simonitsch. "We've gone from abundance to poverty in 30 years." Simonitsch was the first fisherman to stand up at a public meeting and say that Georges Bank should be closed. He shrugs, "After all, we can't have a fishing industry for future generations without fish."

Beyond Blame

Given that there's been a law in place for almost 20 years to protect and promote the U.S. fisheries (see box), the current crisis is hard to fathom. "It's always someone else's fault," says Murawski. The domestic fleet blames damage done by foreign fleets, inshore fishermen blame offshore boats, gill-netters blame trawlers, fishermen blame government, and conservationists blame fishermen and government.

"We haven't gone far enough, fast enough," says Phil Coates, director of the

Massachusetts Division of Marine Fisheries and chairman of the New England Fishery Management Council's groundfish committee (see box). "Everyone is to blame for this situation: the politicians who set policy, the fishermen who didn't comply, the council members and the management agencies that didn't have the will or capability to implement measures."

The Magnuson Act

Until 1976, when Congress passed the Magnuson Fishery Conservation and Management Act, foreign boats in U.S. waters were taking three times as many fish as the domestic fleet. The Act chased foreign vessels from within 200 miles of the U.S. coastline and gave the United States exclusive rights to the marine resources within that area. Other countries quickly established their own 200-mile limits that were ratified by the 1982 Law of the Sea.

Eight regional Fishery Management Councils, with oversight from the National Marine Fisheries Service (NMFS) under the Department of Commerce, were established to develop management plans for their areas. They were put in charge of gear restrictions, closures and setting catch limits, quotas and size restrictions.

There were record years in Alaska, the Gulf and New England until about 1983 as domestic fishermen caught what had been going into Russian, German and Spanish nets. But instead of undoing the damage of foreign overfishing, the Act opened the door to steady expansion of the U.S. fleet, which soon overflowed the vacuum left by foreign boats. Since 1976, the domestic fleet has doubled and catches today are at an all-time low.

The Magnuson Act was supposed to be reauthorized this year, but Gerry Studds, D-Mass., who chairs the House Merchant Marine and Fisheries Committee, recently announced that action has been postponed until early 1995 because of lack of consensus on key issues. Those campaigning for change want to address the Act's basic and apparently incompatible mandate of developing the domestic fishing industry while preserving marine resources. Reforming the councils so they contain fewer people with a vested interest in putting industry over conservation is also a top priority (council members are currently exempt from federal conflict-of-interest laws). Bycatch, fishing gear, degradation of fish habitats, monitoring, data collection and enforcement are also being reviewed.

Some contend that weak leadership from NMFS and the council is mostly to blame. "The science was adequate to identify the problems but management was not capable of making the hard decisions to fix them," says Dave Wiley, a senior scientist at the International Wildlife Coalition. Stephen Clark, deputy chief of conservation and utilization at NMFS in Woods Hole, concurs: "The warning lights have been coming on for years but management has been too slow to react."

Politics may be to blame for slow reaction time. Pressure from the most vocal and powerful segments of the commercial fishing industry has generally allowed short-term financial interests to win over the long-term health of the fish (and by default, of the industry). "The current situation is a testimony to the ineptness of a system that allows vested interests to make the rules," says Wiley.

"Almost every year, the din from scientists has been increasing," says Murawski. But then a good year would boost landings, give the false impression that all was well and throw the credibility of the scientists' data into doubt. Unlike forests, which can be measured almost to the tree, it's nearly impossible to count fish, so stock assessments have often been based on insufficient data. The resulting uncertainty tended to weaken the case for tough and immediate restrictions and gave the council an argument for setting catch limits according to the more optimistic estimates, eliminating any margin for error.

In April 1991, the Conservation Law Foundation of Boston sued NMFS and the Secretary of Commerce for allowing overfishing. Says Peter Shelley, senior attorney, "It was the only way to make people face the situation. ... This is our sustainable-development problem." Within weeks, the government settled out of court on a schedule for managing the fishery.

New Bedford, Mass., is the largest fishing port on the east coast. A fleet of more than 400 trawlers and scallopers supports about 3,000 fishermen and their families, many of whom are first- or second-generation Portuguese. Down on the wharf in the early evening, the air throbs with Portuguese music as fishermen mend nets, paint, smoke and chat. Boats with names like *Predator* and *Bycatch* are lined up at their moorings, huge hulks of steel bristling with antennas and the ever-present radar. They look rusty and clumsy crouching in port, but once at sea, the rust washes away to reveal gleaming metal and the clumsiness becomes functional.

Judy Ramos is president of the Offshore Mariner's Association, which represents New Bedford fishermen. She acknowledges that the New England fishery is in trouble, but is tired of hearing that it's all the fishermen's fault. Poor management, pollution, climate changes and a large fish-eating marine mammal population have all affected fish numbers, she asserts. "The majority [of fishermen] in New Bedford are generational fishermen. ... The sons become fishermen, the daughters marry fishermen. Why would we fish out everything and leave our children high and dry?"

Ramos and Rodney Avila, a New Bedford fisherman recently appointed to the New England council, reject claims that commercial fishing interests run the council. "We've been on record asking for closures and layover days," says Ramos. Five years ago, when New Bedford fishermen noticed how many juvenile yellowtail flounder were mixed in with their catches, they suggested closing parts of Georges Bank. The council cited lack of

scientific data to close on short notice; the fishermen's observations were considered anecdotal. "By the time they got their scientists out there, it was too late," says Avila. "When there were fish to protect, nobody bothered. Now there's nothing and everyone's waving 'Save the fish' signs," adds Ramos.

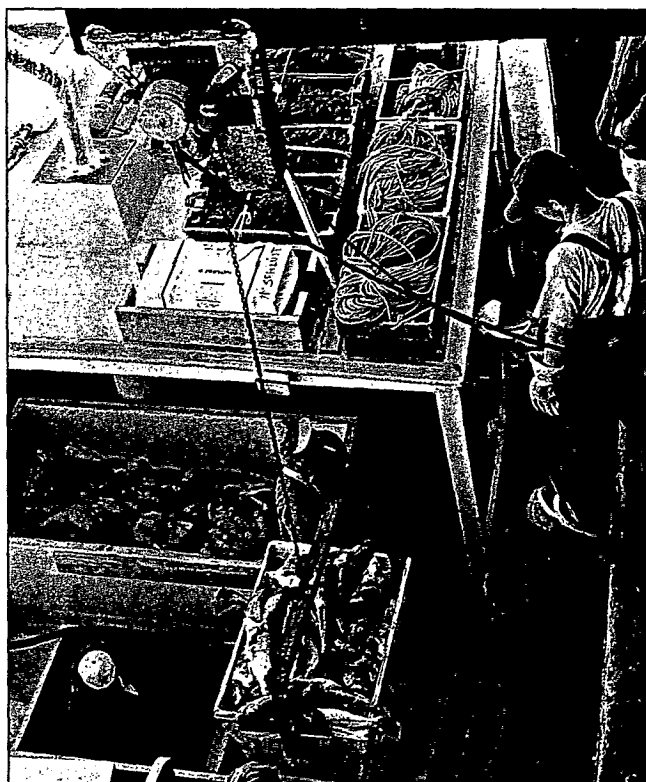
But fishermen are not blameless. Competition is fierce and the underlying "If I don't catch them today, you'll catch them tomorrow" mentality does not lend itself to conserving the resource. Ramos admits, almost defiantly, "Fishermen will fish—it's instinct. If it's open, it's a free-for-all."

Amaru, who says of fishermen, "We have the technology, we just don't have the ethics to go with it," is torn by a desire to help the resource and the need to make a living. Three years ago, he switched to a larger-mesh net that halved his volume but increased the size of the fish caught. But when the bigger fish made no difference in the price he got on the quay, he switched back. "Right now I'm not using it because I'd be cutting my throat ... I'd be way behind the other guys. I have to go against my basic beliefs to survive," he says.

The Human Element

It's clear that the number of fish left in the sea is only half the crisis. The other half involves the number of people whose livelihood depends on those fish. "Take away the fish and you've rent the fabric of the societies that survive on fishing," says Wheeler.

Some, like Shelley, believe that the two problems cannot be solved together: "Too many have tried to merge managing stocks and managing fishermen." If the resource crisis were addressed firmly, many believe the rest would fall into place—albeit with hard times for those involved.



Gill-netters unloading the day's catch of cod at the commercial pier in Chatham.



Once enough salmon have swum into the King Salmon River to spawn, fishermen in Bristol Bay, Alaska, are allowed to haul in as many as they can during a 24-hour period.

According to Coates, "We need to look at a long, long dismal period for groundfishing. We will get out of it eventually ... it's a matter of will. This is a natural resources disaster and those who have the responsibility must address it." Amaru agrees: "We're not going to be able to please everybody. We need to get away from looking at short-term gains at the expense of long-term survival." He adds, "But this industry is based on people who survive hard times."

Part of the reason that fisheries management has been so ineffectual is that New England fishermen are far from being a homogeneous group with one voice. Simonitsch explains it: "Fishermen are like Christians: there are Baptists and Episcopalians and the only thing we have in common is salt water." Says Shelley: "You want to talk to chemical companies, you go to the Chemical Manufacturers' Association; you want to talk to New England fishermen, you've practically got to go door to door."

There is a distrustful, adversarial attitude between the fishing communities and the government agencies. Agency people are often seen as the enemy. Many fishermen believe that the U.S. government encouraged overbuilding the domestic fleet after foreign vessels were banned by the Magnuson Act. Guaranteed loans, easy repayment plans and tax incentives encouraged existing fishermen to upgrade their equipment and attracted a lot of "bandits" to enter what was a booming industry, explains Avila. Now there's strong feeling that the government has some responsibility to bail out those left struggling after the bust.

Ramos asserts that shutting down the fishery would devastate New Bedford. Sixty percent of the town's revenue comes from fishing and related industries, such as processing houses, shipyards, welders, electronics. It would have a domino effect, she says. She's also worried about men who are used to spending 20 days a month at sea being shackled to land. "Fishermen have a reputation for drinking when they're in port. What's going to

happen when they're in port all the time?" Mention retraining, the popular political solution to unemployment, and Ramos laughs. "Retrain them to do what?" she asks. "Flip hamburgers at McDonald's? My husband's 46, he has a fourth-grade education, he has a difficult time speaking English, he's been fishing since he was 14 and he knows nothing else."

Future Options

Earlier this year, the council passed Amendment 5, which aimed to reduce the groundfishing effort by half over the next five years by restricting days at sea, closing selected areas, increasing mesh size and outlawing some of the most destructive fishing practices.

Despite the difficulties of passing it, there is a general feeling of "too little, too late," that stocks are now so depleted that even following Amendment 5 to the letter won't be enough

for them to recover. "We told them three years ago that Amendment 5 wasn't going to work," says Avila, pointing to a map showing closures suggested by New Bedford and Point Judith, R.I., fishermen in 1992 that would have allowed undisturbed spawning. "The amendments are a joke ... it took them eight years to come up with them and there are still ways around all the provisions." "Tinkering will not solve the problem," says Clifford de Baun of the Sierra Club, who advocates closing the fishery completely.

Just a few months after Amendment 5 passed, NMFS released new stock assessments that made it painfully, scientifically clear that the measures were indeed inadequate. At the New England council's September meeting in Maine, all sides seemed to face up to reality. "There was no shouting ... you could've heard a pin drop," says Ramos. "The fishery won't recover unless it's closed. They have to close it."

The only questions now are "when," rather than "if," and whether it will be Georges Bank alone, or the Gulf of Maine as well. At the end of October, the council voted to close about 4,600 square miles of fishing grounds, mostly on Georges Bank, immediately for at least 90 days. Recommendations for further closures could be out within the next nine months or so in the form of a new amendment. Even fishermen agree that closing only Georges Bank would just prolong the agony as all the New Bedford boats headed up to the open fishery. Within a year, the problem would be the same.

When Georges Bank is closed down, 25,000 fishing days a year will be lost. "What do you do with the fleet?" asks Murawski. "Tie the boats to the dock or divert them to alternative species?" Transferring the fishing effort to so-called "underutilized species" doesn't have many backers outside the government. The American consumer, used to bland, white-fish fillets, is unlikely to switch to oily-tasting mackerel overnight or rush to buy something called spiny dogfish. (New Zealand's

orange roughly probably would not have been such a successful export were it known by its local name, "slimeheads.") And fishermen who have carved out niches for themselves harvesting mackerel, dogfish and skate wonder how

long they will last if the enormous capacity of the New Bedford and Gloucester, Mass., fleets is directed toward them. "Underutilized" would quickly become "overfished," shifting the problem and solving nothing.

Ramos is adamant. "Don't talk about closing the fishery without talking about subsidies," she warns. Canada has been subsidizing Newfoundland's 30,000 out-of-work cod fishermen and related workers to the tune of \$400 million a year since the Grand Banks closed in 1992. So far, the U.S. government has allotted more than \$30 million in federal disaster assistance to the New England fishing industry. The money can be used for refinancing, retooling vessels to fish for other species, new gear, aquaculture programs and for direct welfare.

Ramos wants aid at a local level, to give real fishermen—those who have fished for the past 120 consecutive months—time to consider their options without being evicted or having their electricity cut off. "We're not talking about supporting the industry for 10 years, that's impossible," she stresses.

Debt restructuring is badly needed to relieve the pressure on fishermen to go on fishing as hard as they can to make high payments. Since the industry has been declining, banks have refused to take boats as collateral on loans, often forcing fishermen to take out second mortgages on their houses and giving them more to lose if they default.

Some believe that giving fishermen stock in the ocean would make them more likely to conserve for tomorrow what they don't catch today. Rights to a common resource would become a privilege granted to select fishermen in the form of quotas that could be leased, sold or passed on within a family. But such a system would be hard to reverse and could drastically change the face of the New England fishing fleet if its characteristic smaller boats were swallowed up by a few large operators.

"I'm against anything that allows individuals to own a natural resource," says Amaru. But he adds: "We can't continue with free and open entry into a finite system. I would prefer it to be open, but limited to a certain number of permits." He points out that no other natural resource can be taken without some sort of compensation in the United States and says, "I'm 100 percent in favor of a 1-cent-per-pound tax on landed fish that should be paid by fishermen for the privilege of going out and harvesting the oceans."

In his report on the Northeast fishery, *Beyond Denial*, Charles Collins warns: "If fishing power in the northeast is not reduced, the northeast fishery crisis rapidly will become the Atlantic Coast fishery crisis." To bring the fishing effort in line with the amount of fish that can be taken, the number and ability of boats would have to be cut by about 50 percent—at an estimated cost of \$100 million. There's talk of government buyouts, in which fishermen would be paid—below market value, many fear—for their vessels. Those outside may wonder why the government should bail them out at all. After all, who buys work-



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it would bounce back."*

ers' mortgages when a defense contractor, school system or auto manufacturer "downsizes?" But Shelley believes, "The government will have to pay one way or the other—through buyouts or welfare." Shelley confesses

to being somewhat daunted by the challenges ahead, particularly the need to bridge the chasms of distrust between fishermen, regulators, scientists and conservation groups.

Although fish-farming is not the answer to badly managing wild stocks, aquaculture has been used successfully for years to raise salmon, carp and shrimp. Simonitsch and others have applied for a government grant to explore the possibility of helping restore New England stocks with hatchery-reared cod. Releasing cod larvae into open water consistently failed to increase stocks in the past, but recent research in Iceland and Norway has sparked cautious optimism that using older fish might be more successful. Still, not everyone believes. Murawski says, "We can't do better what Mother Nature, given the chance, can do perfectly well. ... Humans have a firm conviction that they can always substitute a technological solution rather than dealing with the fundamental problem; personally, I think it's folly."

There is no doubt that the fishery needs time to recover. Estimates range from five years to 20 years—the approximate lifecycle of a single cod. During that time, new ways of harvesting a (hopefully) rejuvenated stock need to be developed so that the same mistakes are not repeated. Less destructive, more selective methods of fishing should be considered. John Pearce, deputy center director at NMFS, Woods Hole, says, "In the future ... long-lining, certain fixed gear (such as fish traps), and other techniques may provide the fish for us on some sustainable basis. Continued dependence on trawling may only exacerbate the problem."

No matter how strictly nations regulate their own fishing grounds, the high seas are still open to all. Although 90 percent of the world catch is taken within nations' 200-mile limits, several species, like tuna and swordfish, roam through ungoverned waters where they can be taken by whomever, whenever, theoretically until there are none left. Delegates at a U.N. fisheries conference in August agreed that a legally binding treaty should replace the hodgepodge of national and international policies currently governing the oceans. But agreement disintegrated into argument as coastal countries, such as Canada, Chile and Peru, blamed high-seas factory ships for depleting fish in their waters, and distant-water states, like Japan, Korea, China and Poland, blamed the former countries' own mismanagement. Considering that the 1992 U.N. ban on drift nets is still not universally obeyed, trying to regulate a resource that does not respect political boundaries seems overly optimistic.

On the way back to the harbor, the wind is gusting and the water has turned an angry gray. Despite the difficulties that lie ahead for him, Amaru says he feels a certain sense of relief that the fishery will finally be closed. He has one last thing to say about the situation he and 20,000 other New England watermen are in: "The only thing that will help fishermen is fish. If we would just give the ocean a break, it would bounce back." 